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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,675	06/05/2006	Tadashi Iino	Q78933	6929
23373 7590 04/14/2009 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037				
EXAMINER NGUYEN, KHANH TUAN				
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1796				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/581,675

**Applicant(s)**

IINO ET AL.

**Examiner**

KHANH T. NGUYEN

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 4-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office Action is in response to the amendment filed on 02/09/2008. Claims 1, 2, and 4-16 are currently pending in the instant application. Claim 2 has been canceled.

### ***Claim Status***

2. The rejection of claims 1, 2, 4, 5, 7, 8, 10, and 12- under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Pub. 2004/0058214 A1 (Mehler) is withdrawn in view of applicant's remark.
3. The rejection of claims 6. Claims 1, 4-8, and 12-16 under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Pat. 6,331,586 B1 (Thielen) is withdrawn in view of applicant's remark. The rejection of claims 6, 9, and 11 under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. 2004/0058214 A1 (Mehler) as applied to the above claims, and further in view of U.S. Pub. 2003/0191228 A1 (Noguchi) is withdrawn in view of applicant's remark.

### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1, 2, and 4-16 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Objections***

5. Claims 1 and 10 are objected to because of the following informalities: The phrase renders the claims indefinite because it has an alternative meaning which does not positively identify the claims limitation.

Regarding claim 1, the phrase "form of powder and/or fiber" at line 5 renders the claims indefinite. Applicant is suggested to amend the phrase to –form of powder, fiber, or combination thereof--.

Regarding claim 10, the phrase "vapor phase grown carbon fiber and/or carbon nanotube" at lines 2-4 renders the claims indefinite. Applicant is suggested to amend the phrase to – vapor phase grown carbon fiber, carbon nanotube, or combination thereof--.

***Claim Rejections - 35 USC § 112***

6. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "the vapor-phase grown carbon fiber or carbon nanotubes" in line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
8. Claims 1, 2, 4-6, 8, 10, and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. 2003/0130405 A1, now U.S. Pat. 7,008,991 B2 (hereinafter refer to as Takagi) as evident by Product Data Sheet of Ketjenbalck® EC-600JD.

With respect to claim 1, Takagi teaches a thermoplastic resin composition having fine electrical properties such as conductivity [0001] that is useful as a molding material in OA equipment, electronic devices, and automobile parts [0058]. The thermoplastic resin composition of Takagi is considered to be an electroconductive resin composition. Takagi teaches the electroconductive resin composition having an island-and-sea micro structure, i.e. a phase separation, wherein component A is the island phase and component B is the sea phase, i.e. the continuous phase to provide mechanical strength (Abstract; [0046] and [0047]). The island-and-sea resin composition of Takagi is readable on the claimed multi-component polymer-type resin binder (A) since said resin composition is a micro-phase separation structure that comprising a resin component dispersed phase (island) and a resin continuous phase (sea) as claimed. Takagi also teaches the size of the island phase (component A) is usually 0.1 to 10 microns [0046]. The lower limit of the island phase size as suggested by Takagi is considered to be the number-average size of the island phase that overlaps with the dispersed phase of 0.001-2 microns. Takagi further teaches the electroconductive resin

composition comprising conductive inorganic material such as conductive carbon black (carbonaceous material), carbon fiber, metallic fiber, metallic powder and metal oxides [0002]. Takagi teaches adding carbon black to the blended resin composition in order to obtain high-conductivity [0002]. Specifically, Takagi teaches adding carbon black in both the island phase (component A) and sea phase (component B) [0048]. In one embodiment, Takagi teaches using Ketchen black 600JD, i.e. Ketjenblack® EC-600JD, as the conductive carbon black material [0076-0077]. The Ketjenblack® EC-600JD has a particle size smaller than 125 microns (See Product Data Sheet).

Although, Takagi does not explicitly suggest the number-average particle size of the island phase (dispersed phase) in the island-and-sea composition is smaller than the number-average particle size of the electroconductive material. Nonetheless, it would have been obvious for a skilled artisan to disperse an island phase having a size as low as 0.1 micron which is within the range of applicant's claims because would have been obvious to select a value within a known range by optimization for the best results. Moreover, it would have been obvious to incorporate an electroconductive carbonaceous material having a particle size that is larger than the dispersed island phase.

Regarding claims 2 and 10, Takagi teaches the electroconductive component, i.e. both component C and component D, is 0.1 to 15 parts by weight to 100 parts by weight of the island-and-sea resin composition, i.e. island component A and sea component B. [0053]. In other words, Takagi teaches the electroconductive resin

composition comprising of about 10 to about 13 wt. % of electroconductive component (component C and component D) and about 87 to about 90 wt. % of the island-and-sea resin composition (component A and component B) based on the total amount (sum of components A+B+C+D) of 100 mass% as recited in claim 2. Takagi also teaches electroconductive component may include carbon fiber [0002]. The carbon fiber of Takagi is readable on the claimed vapor-phase grown carbon fiber because the subject matter would have been obvious to the skilled artisan and the patentability of selecting a carbon fiber does not depend on its method of production such as vapor-phase grown, the burden rests with the applicant to prove that that carbon fiber of Takagi is patentably distinct from applicant's vapor-phase grown carbon fiber.

Regarding claims 4-6, Takagi teaches the island-and-sea resin composition wherein the island phase (component A) may include polyolefinic elastomers and the sea phase (component B) includes thermoplastic resin as recited in claims 4 and 6 [0031-0034]. Takagi further teaches the weight ratio of polyolefinic elastomers (component A) and thermoplastic resin (component B) is 5 to 65 parts by weight and 95 to 35 parts by weight in 100 parts by weight of the two resin combined [0052].

Regarding claim 8, Takagi teaches the electroconductive resin composition comprising conductive inorganic material such as conductive carbon black, carbon fiber, metallic fiber, metallic powder and metal oxides [0002].

Claims 12-16 recited the phases "obtained by" which are considered a product-by-process claims and are not limited to the manipulations of the recited steps, only the structure limited by the steps. Therefore, the patentability of the product does not depend on its method of production (i.e. molding and electroconductive resin composition) and the claimed steps were not given patentable weight. Any difference imparted by the product by process limitations would have been obvious to one having ordinary skill in the art at the time the invention was made because where the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct, not the examiner to show the same process of making, see *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. 2003/0130405 A1, now U.S. Pat. 7,008,991 B2 (Takagi) as evident by Product Data Sheet of Ketjenblack® EC-600JD as applied to the above claims, and further in view of U.S. Pub. 2001/0016531 A1 (hereinafter refer to as Morikoshi).

Takagi is relied upon set forth above. With respect to claim 7, Takagi teaches the thermoplastic resin composition having fine electrical properties such as conductivity [0001] that is useful as a molding material in OA equipment [0058]. Takagi teaches the thermoplastic resin composition may comprises of a thermoplastic resin (component A) having a block copolymer including soft segments of alpha-olefines and if necessary



may have other unsaturated monomers such as (meth)acrylic acids [0031-0033]. Thus, said thermoplastic resin of Takagi is may containing a soft acrylic acid segment.

The difference between the instant invention and Takagi reference is that Takagi teaches failed to expressly suggest the island-and-sea resin composition, i.e. the claimed component (A), comprising at least a polyvinylidene fluoride.

In an analogous art, Morikoshi teaches a resin composition having the same utility, i.e. a thermoplastic resin used in the structural or functional parts of OA equipment, as suggested by Takagi [0015]. Morikoshi also teaches the resin composition having a sea-island polyblend with conductive filler such as carbon black to provide electrical conductivity to the molded parts as suggested by Takagi ([0021] and [0058]). Morikoshi further teaches the thermoplastic resin may include polyamide, polycarbonate, and polyvinylidene fluoride [0055].

Thus, it would have been obvious to a skilled artisan at the time the invention was made to modify the composition of Takagi by incorporating a polyvinylidene fluoride into the sea-island polyblend as suggested by Morikoshi because such as modification is expressly suggested by the prior art for the same utility. It should be noted that that the composition of Takagi includes the "comprising" terminology which leaves said composition open for the inclusion of unspecified ingredients, such as other thermoplastic resin as suggested by Morikoshi, even in major amounts, see *Ex parte Davis et al.*, 80 USPQ 448 (PTO Ed. App. 1948). (See claim 1 of Takagi).

10. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. 2003/0130405 A1, now U.S. Pat. 7,008,991 B2 (Takagi) as evident by Product Data Sheet of Ketjenblack® EC-600JD as applied to the above claims, and further in view of U.S. Pub. 2003/0191228 A1 (hereinafter refer to as Noguchi).

Takagi is relied upon set forth above. With respect to the instant claims, Takagi does not suggest a carbonaceous material including boron in an amount of 0.05-5 mass % as recite in claim 9. Takagi also failed to suggest the electroconductive resin composition having a vapor-grown carbon fiber or carbon nanotube containing 0.05-5 mass % of boron as recited in claim 11.

However, Noguchi discloses a conductive curable resin composition comprising of (A) a curable resin composition containing a blend of elastomer (A1) and thermoplastic radical reactive resin (A2) ([0013] and [0043-0049]). Noguchi discloses the elastomer (A1) such as polyolefin [0040] in order to provide excellent conductivity and superior heat release properties [0013]. Noguchi further discloses the conductive curable resin composition comprising a (B) carbon material (e.g. graphite powder, carbon black, carbon fiber, VGCF, CNT and a mixture thereof) may be used alone or it may be added with boron in an amount of 0.05-10 % weight and VGCF or CNT in the admixture to improve the conductivity of the carbon material [0079 and 0083-0084] as recited in claims 9 and 11. Noguchi discloses the conductive curable resin composition may be used in electronic devices [0095] as suggested by Takagi.

Takagi and Noguchi references are combined because both references teach an electroconductive resin composition containing carbonaceous powder dispersed in a

blend of resin binder matrix that is useful in electronic devices. Therefore, it would have been obvious to a skilled artisan at the time of the invention to have modified the conductive carbon black or carbon fiber of Takagi to include 0.05-10 wt. % of boron in order to provide excellent conductivity and superior heat release properties as suggested by Noguchi.

11. In view of the foregoing, the above claims have failed to patentably distinguish over the applied art.

### ***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHANH T. NGUYEN whose telephone number is (571) 272-8082. The examiner can normally be reached on Monday-Friday 7:00-4:00 EST PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Kopec/  
Primary Examiner, Art Unit 1796

/KTN/  
Examiner  
04/08/2009